Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Please amend claims 1-10 and 12-32 as indicated below (material to be inserted is in **bold and underline**, material to be deleted is in ~~strikeout~~ or (if the deletion is of five or fewer consecutive characters or would be difficult to see) in double brackets [[ ]]):

<u>Listing of Claims:</u>

1.   (Currently Amended)   A method for ~~synthesizing~~ **applying** a reference value [[in]] **to** an electrocardial waveform **including   a series of heart beats, the method** comprising:

identifying a triggering event within the electrocardial waveform;

waiting a period of time after the triggering event ~~until the electrocardial waveform enters~~ **for** an interval of relative inactivity **in the waveform**;

sampling the electrocardial waveform during the interval of relative inactivity **to provide a sample voltage value corresponding to a selected beat**; and

dynamically referencing the electrocardial waveform to the sample **voltage value over a period of the selected beat**.

2.   (Currently Amended)   The method of claim 1, wherein the interval of relative inactivity occurs during ~~the~~ **a TP** [[PT]] interval of the electrocardial waveform.

3.   (Currently Amended)   The method of claim 1, wherein the triggering event is ~~the~~ **a** peak R-value in ~~the~~ **a** QRS complex of the electrocardial waveform.

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4.   (Currently Amended) The method of claim 1, wherein the triggering event is **a** ~~the~~ peak R-value in **a** ~~the~~ QRS complex of the electrocardial waveform followed by at least one of ~~the~~ **a** negative S peak in the QRS complex and ~~the~~ **a** T wave.

5.   (Currently Amended) The method of claim 1, wherein the triggering event is **a** ~~the positive~~ **peak** R-value in **a** ~~the~~ QRS complex followed by a period of at least 0.2 seconds of relative inactivity.

6.   (Currently Amended) The method of claim **1** [[5]], further comprising ~~the step of~~ measuring **a value of the interval of relative inactivity between** successive peak R values and **modifying the length of the period of time waiting** ~~adjusting the period of time used in the waiting step~~ in response to the **measured interval values** ~~measuring step~~.

7.   (Currently Amended) The method of claim 1, wherein the sample **voltage value** supplants a ground provided by a reference electrode used in recording the electrocardial waveform.

8.   (Currently Amended) The method of claim 1, wherein ~~the sampling step~~ **referencing the electrocardial waveform** includes supplying a reference voltage substantially equal to the value of the sampled **waveform during the interval of relative inactivity** ~~voltage~~.

9.   (Currently Amended) The method of claim 1, wherein ~~the~~ identifying [[a]] **the triggering event** ~~step~~ additionally comprises detecting frequency components in the electrocardial waveform.

10.   (Currently Amended) A system for **generating** ~~synthesizing~~ a reference

value for an electrocardial waveform **including a series of beats**, comprising:

at least one electrode input that conveys a voltage **signal of** ~~representing~~ the

electrocardial waveform of a patient;

an event detector that detects an event within the electrocardial waveform;

a sampling device that determines the reference value corresponding to a

selected beat;

a timing device that, after a **wait** period ~~of time and~~ in response to the event

detector, activates [[a]] **the** sampling device; **and**

a referencing element that applies the reference value to the voltage signal

over a period of the selected beat.

~~wherein the sampling device determines the reference value to which the~~

~~electrocardial waveform is referenced.~~

11.   (Original) The system of claim 10, wherein the reference value is

substantially zero volts.

12.   (Currently Amended) The system of claim 10, wherein the event is ~~the~~ **an**

R peak of ~~the~~ **a** QRS complex of the electrocardial waveform.

13.   (Currently Amended) The system of claim 10, wherein the event is an

interval of relative inactivity followed by **a** ~~the~~ peak of **a** ~~the~~ QRS complex of the

electrocardial waveform.

14.   (Currently Amended) The system of claim 10, wherein the sampling

device ~~additionally detects a~~ **measures a** rate of change in the voltage **signal** of the

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electrocardial waveform, **and determines** ~~the sampling device determining~~ the reference value based **at least in part** on ~~the sample and~~ the rate of change in the voltage **signal**.

15.   (Currently Amended)   The system of claim 10, further comprising a processor, coupled to the timing device, ~~for measuring~~ **configured to measure the** time between successive **corresponding** events in the electrocardial waveform and ~~adjusting the timing device in accordance with~~ **to modify a length of the wait period in response to** the measured time.

16.   (Currently Amended)   A device for recording an electrocardial waveform, comprising:

at least one input for receiving a signal from an electrode, the signal representing an electrocardial waveform;

a sampling element to digitize the received signal;

a memory element coupled to the **at least one input** ~~receiver channel~~, that stores [[a]] **the** digitized ~~version of the received~~ signal;

a processor, coupled to the memory, **and configured to**:

identify a ~~for searching for the~~ peak value of ~~the digitized version of~~ the received signal; ~~the processor also~~ **and**

~~measuring a period of time from the peak value until an expected region of relative inactivity in the digitized version of the received signal; and~~

determine a voltage value sampling the digitized version of the received

signal during an interval during the expected region of relative inactivity,

the interval located relative to the peak value; and

a reference voltage generator for generating the value of the sample a voltage

applied to the incoming signal substantially equal to the determined voltage

value.

17.   (Currently Amended)   The device of claim 16, further comprising an

amplifier that subtracts the generated voltage value of the sample from the at least

one received signal received form the at least one input by way of the at least one

input.

18.   (Currently Amended) The device of claim 16, wherein the identified peak

value is the an R peak of the a QRS portion of the electrocardial waveform.

19.   (Currently Amended)   The device of claim 16, wherein the interval

expected region of relative inactivity occurs after the a T wave of a first sinus rhythm

event but prior to the a P wave of a second sinus rhythm event, wherein both sinus

rhythm events are components of pertain to the electrocardial waveform.

20.   (Currently Amended)   The device of claim 16, wherein the processor

adjusts the sampling interval sampled as a function of the time between the peak

value of a first sinus rhythm event and the peak value of a second sinus rhythm event,

wherein both sinus rhythm events pertain to are components of the electrocardial

waveform.

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21.   (Currently Amended)   The device of claim 16, wherein the processor additionally detects ~~the presence of certain~~ frequency components in the ~~digitized version of the~~ received signal.

22.   (Currently Amended)   A receiver for ~~receiving~~ an electrocardial **signal** ~~waveform~~, comprising:

digital means for ~~receiving an input that represents~~ **characterizing** an electrocardial **signal, the digital means including:**

a detector element for identifying at least one distinct feature of the signal;

a sampling element to determine a value for an interval of the signal; and

timing means to activate the sampling element after the feature is detected and at the start of the sampled interval; and

analog means operably coupled to the digital means for modifying the electrocardial signal, the analog means including:

a generator configured to output a voltage signal level as a function of the interval value; and

an integrating element to integrate the electrocardial signal with the generator signal.

~~means for receiving an input that represents an electrocardial waveform; means for detecting an event within the electrocardial waveform; means for measuring a period~~

of time from the detected event; and means for sampling the electrocardial waveform when the period of time has expired.

23.   (Currently Amended) The receiver of claim 22, wherein the means for detecting the event within the electrocardial waveform further comprises means for detecting **the at least one distinct signal feature includes** the **an** R peak of the **a** QRS complex of the electrocardial **signal** waveform.

24.   (Currently Amended) The receiver of claim 23, further comprising means for detecting **wherein the at least one distinct signal feature includes** a negative peak of the QRS complex.

25.   (Currently Amended) The receiver of claim 22, wherein the means for detecting the event within the electrocardial waveform further comprises means for detecting **the at least one distinct signal feature includes** an interval of relative inactivity followed by an R peak of **a** the QRS complex from a previously-recorded electrocardial waveform in order to determine an interval of relative inactivity of a subsequently-recorded electrocardial waveform.

26.   (Original) The receiver of claim 22, additionally comprising means for detecting frequency components in the electrocardial **signal** waveform.

27.   (Currently Amended) A computer-readable media having computer-readable instructions thereon, which, when executed by a computer, cause the computer to execute a method for synthesizing a reference value for an electrocardial waveform, the method comprising:

identifying a triggering event within the electrocardial waveform;

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sampling the electrocardial waveform during **an** ~~the~~ interval of relative inactivity; and

referencing the electrocardial waveform to the sample;

wherein the triggering event includes a first and a second feature of the electrocardial waveform.

28.   (Currently Amended)   The ~~computer-readable media~~ **method for synthesizing a reference value** of claim 27, further comprising waiting a period of time after ~~the~~ identifying **the triggering event** ~~step~~ until the electrocardial waveform enters **a** ~~the~~ **TP** [[PT]] interval.

29.   (Currently Amended) The method **for synthesizing a reference value** of claim 27, wherein the interval of relative inactivity occurs during ~~the~~ **a TP** [[PT]] interval of the electrocardial waveform.

30.   (Currently Amended) The method **for synthesizing a reference value** of claim 27, wherein **sampling the waveform provides a sample voltage value corresponding to a selected beat, and wherein referencing the waveform to the sample includes dynamic referencing of the sampled voltage value over a period of the selected beat** ~~triggering event is the peak R value in the QRS complex of the electrocardial waveform.~~

31.   (Currently Amended) The method **for synthesizing a reference value** of claim 27, wherein the triggering event is ~~the positive~~ **a** peak R value in **a** ~~the~~ QRS complex of the electrocardial waveform followed by at least one of **a** ~~the~~ negative peak in the QRS complex and **a** ~~the~~ T wave.

32.   (Currently Amended) The method **for synthesizing a reference value** of claim 27, wherein **referencing the waveform** ~~the sampling step~~ includes supplying a reference voltage substantially equal to ~~the value of the~~ **a** sample[[d]] **voltage value**.

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